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KEY TO THE MALES OF NEARCTIC *DOLICHOPUS* LATREILLE (DIPTERA)

By M. C. Van Duzee and C. H. Curran

Since the monograph of the genus *Dolichopus* by Van Duzee, Cole, and Aldrich in 1921 (Bull. 116, U. S. Nat. Mus.), a large number of species have been added to the North American fauna and at the present time the identification of species is rather difficult. The receipt of a copy of Mr. Van Duzee's manuscript key prompted the junior author to request permission to publish it after making certain alterations in style and a few other changes which eliminated a certain amount of duplication, and also crediting the species described in the above-mentioned "Bulletin" to Van Duzee.

It might be well to state here the reasons for this action, inasmuch as some workers still credit the species to the three authors. Without regard to the feelings of the authors as to credit for the species described we must accept the statement contained in the introduction, written by Dr. Aldrich. On page 7 Aldrich states: "At length I hit upon the idea of a joint paper, Mr. Van Duzee to prepare the text except the introduction, and Mr. Cole the figures." This course was carried out and as a result Mr. Van Duzee was entirely responsible for the systematic work and is alone to be credited with the new species described.

Descriptions of two new species have been prepared by the junior author. The types are in The American Museum of Natural History.

Table of Species

1.—Femora yellow; at most the tips of the posterior pair black ..... 5.
  At least one pair of femora mostly black or the femora with blackish stripes below ..... 2.
2.—Posterior orbital cilia wholly black, rarely a few pale hairs between the black ones ..... 3.
  Lower orbital cilia pale ..... 4.
3.—Squamal cilia pale ..... 9.
  Squamal cilia black, the short hairs often pale ..... 11.
4.—Middle tibiae black ..... 46.
  Middle tibiae yellow ..... 68.
5.—Lower orbital cilia pale ..... 6.
  Orbital cilia black, at most one or two pale ones below ..... 104.

6.—Squamal cilia black, the short hairs often yellowish.....7.
Squamal cilia pale.....114.
7.—Posterior tibiae yellowish, at most slightly brownish at the apex.....8.
Posterior tibiae with black apex.....153.
8.—Posterior tarsi wholly black.....228.
Posterior tarsi with the first segment at least half yellow.....276.

GROUP A

9.—Wings with blackish apical spot; basal segment of middle tarsi with silvery spot near the apex (Alaska).....*mannerheimi* Zetterstedt.
Wings and middle tarsi without spots.....10.
10.—Posterior tibiae yellow with sharply defined black apex; costa without distinct enlargement at tip of first vein (eastern United States; Canada). *laticornis* Loew.
Posterior tibiae more extensively blackish, the colors not sharply defined; costa with a distinct enlargement at the tip of the first vein (Canada; New York; Connecticut).....*nodipennis* Van Duzee.

GROUP B

11.—Basal segment of front tarsi with a row of erect bristles below (Indiana; New Jersey).....*retinens* Van Duzee.
Basal segment of front tarsi without such bristles.....12.
12.—Middle femora at least half yellowish.....13.
Middle femora not more than one third yellowish.....22.
13.—Middle and hind femora black at base, gradually becoming yellow, but largely blackish; lamellae small, infuscated.....14.
Middle femora wholly yellow, or with the black at tip more distinctly limited.....15.
14.—Tips of third and fourth veins quite close together, convergent beyond the bend in fourth vein (Wisconsin).....*umbrosus* Van Duzee.
Tips of third and fourth veins well separated, nearly parallel beyond the bend of the fourth vein (New York).....*adultus* Van Duzee.
15.—Hind femora yellow, except base and part of ventral edge (Idaho). *opportunus* Van Duzee.
Hind femora black, the tip may be yellow.....16.
16.—Front femora mostly yellow (eastern states; Canada)..*flavilacertus* Van Duzee.
Front femora largely black, at least black on basal half.....17.
17.—Fourth segment of middle tarsi distinctly compressed; hind femora with two preapical bristles (New York; Illinois).....*remus* Van Duzee.
All tarsi plain or nearly so.....18.
18.—Hind tibiae wholly black (New Jersey).....*demissus* Van Duzee.
Hind tibiae with basal part yellow.....19.
19.—Middle femora distinctly blackened at base.....20.
Middle femora not or but slightly infuscated at base.....21.
20.—Middle and hind femora each with two preapical bristles; third antennal segment about one and a half times as long as wide (Idaho). *bisetosus* Van Duzee.
Middle and hind femora each with one preapical bristle; third antennal segment two or three times as long as wide (New York)..*adultus* Van Duzee.

21.—Face ocher yellow (Greenland; Labrador).....*groenlandicus* Zetterstedt.
Face silvery white (Wisconsin; New York).....*incongruus* Wheeler.

22.—Anterior tibiae black or blackish.....23.
Anterior tibiae yellow or yellowish.....34.

23.—Last segment of front tarsi compressed.....24.
Front tarsi plain.....26.

24.—Fifth segment of front tarsi somewhat obcordate, second and third usually yellowish (New Mexico; British Columbia).....*manicula* Van Duzee.
Front tarsi wholly black, the fifth segment not notched at tip.....25.

25.—First antennal segment yellow below; fifth segment of front tarsi cut off rather straight at tip (California).....*acricola* Van Duzee.
Antennae wholly black; fifth segment of front tarsi extended a little at upper corner (California).....*corax* Osten Sacken.

26.—First segment of middle tarsi mostly white.....27.
First segment of middle tarsi wholly black.....28.

27.—Wings with a conspicuous blackish spot at tip (Washington).
argentipes Van Duzee.
Wings without trace of such a spot (Alaska; Labrador).
stenhammeri Zetterstedt.

28.—Hypopygial lamellae wholly black, or brown with a black border.....29.
Hypopygial lamellae whitish or yellowish with a black border.....32.

29.—Posterior femora ciliated below, bearing one preapical bristle.....30.
Posterior femora without cilia below, bearing two preapical bristles (Colorado).
barbaricus Van Duzee.

30.—Face dark grayish or brownish.....31.
Face silvery white, somewhat yellowish on the upper half (Oregon).
oregonensis Van Duzee.

31.—Face dark grayish (Alberta).....*breviciliatus* Van Duzee.
Face brownish (Alberta).....*albertensis* Curran.

32.—Posterior femora ciliated below.....33.
Hind femora without cilia below (Washington; British Columbia).
monticola Van Duzee.

33.—Wings rounded, rather wide; color light green (northwest coast).
paluster Melander and Brues.
Wings elongated; color more coppery-green (Alaska).....*fortis* Aldrich.

34.—Posterior femora ciliate below, the hairs at least about half as long as the femoral width.....35.
Posterior femora not ciliate below.....42.

35.—With two or more preapical bristles on middle and posterior femora (Colorado).
partitus Melander and Brues.
With a single preapical bristle.....36.

36.—Face white or yellowish.....37.
Face yellowish brown or brown.....40.

37.—Posterior tibiae yellowish for one-third their length.....38.
Posterior tibiae wholly black or nearly so (New Jersey; Indiana).
johnsoni Aldrich.

38.—Cilia of posterior femora little more than half as long as the femoral width..39.
Cilia of posterior femora as long as the femoral width (Labrador).
packardi Van Duzee.

39.—Genital lamellae with a large, subangular upward projection at the apex (New York).....*aequalis* Van Duzee.
Genital lamellae rather triangular, with a very small projection above at the apex (Louisiana, Indiana).....*alacer* Van Duzee.

40.—Posterior tibiae yellowish above for one-third their length (eastern U. S. and Canada).....*gratus* Loew.
Posterior tibiae black, the base more or less reddish.....41.

41.—Front green, with violaceous tinge; genital lamellae usually mostly brown (Georgia; New York; Connecticut).....*mercieri* Parent.
Front without violaceous reflections; genital lamellae mostly yellowish (eastern United States and Canada).....*calcaratus* Aldrich.

42.—Third antennal segment three times as long as wide, the arista subapical; genital lamellae blackish (Illinois).....*intentus* Melander and Brues.
Third antennal segment not over twice as long as wide.....43.

43.—Face silvery white.....44.
Face golden yellow or brownish.....45.

44.—Wings with brownish cloud beyond the middle; face narrow (Nevada).
nubifer Van Duzee.
Wings not distinctly clouded; face wide (Idaho).....*beatus* Van Duzee.

45.—Face golden yellow, a little brownish above; lower orbital cilia broad and scale-like (British Columbia).....*andersoni* Curran.
Face brownish; lower orbital cilia not squamose (Alberta)...*vanduzeei* Curran.

GROUP C

46.—Cilia of the squamae pale.....47.
Cilia of the squamae black.....53.

47.—Costa considerably enlarged before tip of first vein (Montana).
viridis Van Duzee.
Costa not or with a small enlargement at tip of first vein.....48.

48.—Hypopygial lamellae large, blackish, rather pointed at tip (Colorado; Idaho; Nevada; Washington).....*nigricauda* Van Duzee.
Hypopygial lamellae whitish with a black border, at most a little brownish..49.

49.—All segments of middle tarsi slightly compressed (Idaho; Nevada; Utah; California).....*squamosus* Van Duzee.
Middle tarsi plain, normal.....50.

50.—Hypopygial lamellae quadrangular in outline (Colorado).
enigma Melander and Brues.
Lamellae somewhat oval or triangular in outline.....51.

51.—Hypopygial lamellae not at all jagged at apex (California).
formosus Van Duzee.
Hypopygial lamellae jagged and bristly at apex.....52.

52.—Face brown or yellowish brown (Colorado).....*brunneus* Van Duzee.
Face silvery white (Montana).....*interjectus* Van Duzee.

53.—Fifth segment of front tarsi enlarged, second and third yellowish, remainder of front tarsi black (Hudson Bay Territory)..... *tetricus* Loew.
Fifth segment of front tarsi plain.....54.

54.—Hind femora ciliated on lower surface.....55.
Hind femora without cilia below.....61.

55.—Hypopygial lamellae blackish.....56.
Hypopygial lamellae whitish with a black border.....58.

56.—Only four or five of the lower orbital cilia pale (British Columbia). *uliginosus* Van Duzee.
The pale orbital cilia extend to the middle of the eyes.....57.

57.—Genital lamellae somewhat crescent shaped, wide in the middle (Illinois). *calainus* Melander and Brues.
Genital lamellae somewhat triangular with the apex rounded (eastern states and Canada)..... *detersus* Loew.

58.—Front tarsi one and a half times as long as its tibiae (Kansas).. *kansensis* Aldrich.
Front tarsi not over one and a fourth times as long as their tibia.....59.

59.—Middle and hind femora each with two preapical bristles, placed one before the other (Colorado; Idaho; Nevada)..... *adaequatus* Van Duzee.
Middle and hind femora each with one preapical bristle.....60.

60.—Face rather wide; costa with a small knot-like enlargement at tip of first vein (Colorado)..... *enigma* Melander and Brues.
Face narrow; costa without any enlargement at tip of first vein (western states)..... *myosota* Osten Sacken.

61.—First segment of posterior tarsi with ten to twelve large bristles (California). *multisetosus* Van Duzee.
First segment of posterior tarsi with two to six large bristles.....62.

62.—Hypopygial lamellae brown or brownish; face wide, whitish; genital lamellae rather small (Idaho)..... *sordidatus* Van Duzee.
Hypopygial lamellae white with a black border.....63.

63.—Hypopygial lamellae acutely pointed at tip (eastern states)... *acuminatus* Loew.
Hypopygial lamellae not or scarcely pointed at tip.....64.

64.—Hypopygial lamellae somewhat quadrate in outline (Colorado). *enigma* Melander and Brues.
Hypopygial lamellae shaped otherwise.....65.

65.—Hypopygial lamellae somewhat triangular in outline (western). *myosota* Osten Sacken.
Hypopygial lamellae oval in outline.....66.

66.—Second, third, and fourth segments of the front tarsi of nearly equal length (New York; Wisconsin; Idaho)..... *ovatus* Loew.
Second segment of front tarsi decidedly longer than the third.....67.

67.—Genital lamellae with long, blackish hairs along the inner side and two stout, angulated bristles (Idaho)..... *nigrimanus* Van Duzee.
Genital lamellae fringed with short, delicate hairs (California). *formosus* Dan Duzee.

GROUP D

68.—Costa greatly enlarged before tip of first vein; middle tarsi very long and slender, each segment enlarged at tip; face extending below the eyes...69.
Not with the above combination of characters.....70.
69.—All femora black (Nevada; Utah).....*appendiculatus* Van Duzee.
Middle and hind femora largely yellow, blackened at base (Manitoba).
maculitarsis Van Duzee.
70.—Cilia of calypters pale.....71.
Cilia of calypters black.....79.
71.—Wings marked with brown or blackish.....72.
Wings wholly grayish hyaline, or only slightly clouded in front.....73.
72.—Wings clouded along the front and on the veins; last three segments of hind tarsi fringed above (Puget Sound; North Europe)....*remipes* Wahlberg.
Apex of wings with a well-defined blackish spot (eastern states)...*setifer* Loew.
73.—Front covered with white pollen, which, when viewed from certain angles, conceals the ground color (Massachusetts).
agronomus Melander and Brues.
Front metallic, more or less shining.....74.
74.—First antennal segment unusually long and slender (Alaska).
humilis Van Duzee.
First antennal segment normal.....75.
75.—Hind tibiae distinctly thickened, mostly black.....76.
Hind tibiae rather slender, yellow with a black tip.....78.
76.—Posterior femora with long white cilia below (Washington).
melanderi Van Duzee.
Posterior femora not ciliate below.....77.
77.—Posterior femora with a row of long hairs above, ending in the preapical bristle (Washington; California).....*californicus* Van Duzee.
Posterior femora with one preapical bristle (Labrador, Quebec).
bryanti Van Duzee.
78.—Front tarsi with its segments narrowed at base; third antennal segment rather small, rounded (Washington).....*litoralis* Van Duzee.
Front tarsi normal; third antennal segment nearly three times as long as wide; arista very short, subapical (Indiana).....*angusticornis* Van Duzee.
79.—Middle femora mostly yellow.....80.
Middle femora largely black or wholly black.....86.
80.—Hind femora black.....81.
Hind femora mostly yellow.....82.
81.—Last two segments of middle tarsi compressed and fringed (western).
varipes Coquillett.
All tarsi plain (Idaho).....*sedulus* Van Duzee.
82.—Hind femora wholly yellow (western).....*amnicola* Melander and Brues.
Hind femora black above, at least at tip, or blackish at extreme base.....83.
83.—Hind femora black at apex.....84.
Hind femora black above for their whole length.....85.
84.—Middle and hind femora each with two preapical bristles; wings with a faint clouded spot near the middle (Alberta).....*diversipennis* Curran.
Middle and hind femora each with one preapical bristle (Labrador; Quebec).
bryanti Van Duzee.

85.—Costa with a knot-like enlargement at tip of first vein; front tarsi ornamented (Alaska)..... *solidus* Van Duzee.
Costa not or scarcely enlarged at tip of first vein; hypopygial lamellae small, yellowish; hind femora without cilia below (New Hampshire; Colorado; Alaska)..... *xanthocnemus* Loew.
86.—Middle femora infuscated at base, gradually becoming yellow toward apex..87.
Middle femora black, their tips may be yellow.....91.
87.—First antennal segment long and slender (Alaska)..... *humilis* Van Duzee.
First antennal segment short as usual.....88.
88.—Hypopygium short, its lamellae yellowish (New Hampshire). *brevicauda* Van Duzee.
Hypopygium of normal size, its lamellae whitish.....89.
89.—Hind femora without cilia below (Idaho)..... *sedulus* Van Duzee.
Hind femora ciliated below near tip with a few white hairs.....90.
90.—Cilia of squamae black (New Hampshire; Colorado; Alaska). *xanthocnemus* Loew.
Cilia of the squamae yellowish (Washington)..... *litoralis* Van Duzee.
91.—Hind femora ciliated below with long hairs.....92.
Hind femora without cilia below, or the cilia very short.....97.
92.—Hind femora ciliated with long black hairs.....93.
Hind femora ciliated with long pale hairs.....94.
93.—Wings with a conspicuous brown spot in front of the cross-vein (Colorado). *partitus* Melander and Brues.
Wings without a brown cloud (eastern states)..... *albiciliatus* Loew.
94.—Hind tibiae swollen, subfusiform, mostly black (South Dakota; Colorado; Idaho; Wyoming)..... *conspicuus* Van Duzee.
Hind tibiae not or but slightly enlarged, yellow, with a sharply defined black apex.....95.
95.—Hind femora ciliated with a few long white hairs below; front tarsi plain; costa with a small knot-like enlargement at tip of first vein.....103.
Hind femora without cilia below.....96.
96.—Hind tibiae yellow with a black tip (New York)..... *aequalis* Van Duzee.
Hind tibiae mostly black (New York)..... *burnesi* Van Duzee.
97.—Distance between third and fourth veins at tip only half as great as at bend in fourth vein (Oregon; Washington)..... *convergens* Aldrich.
Third and fourth veins nearly parallel beyond the bend in last section of fourth.....98.
98.—Hypopygial lamellae with very dense black hair on apical portion (eastern; North Dakota; Colorado)..... *barbicauda* Van Duzee.
Hypopygial lamellae with only the usual fringe of hair and bristles on apical edge.....99.
99.—Costa not or scarcely enlarged at tip of first vein.....101.
Costa distinctly enlarged at tip of first vein.....100.
100.—Costa with a very small, knot-like enlargement at tip of first vein (New York; New Jersey)..... *burnesi* Van Duzee.
Enlargement of costa at tip of first vein tapering to tip of costa. (Saskatchewan)..... *fumosus* Van Duzee.

101.—Orbital cilia white, except a few of the upper ones.....102.
Only one or two of the lower orbital cilia yellow, the rest black (New York). *aequalis* Van Duzee.
102.—Posterior tibiae black on apical third; genital lamellae with narrow dark margin (Florida).....*recticosta* Aldrich.
Posterior tibiae black on less than the apical fourth; genital lamellae with the border broadly black except on the basal half (New Jersey)..*kleini*, n. sp.
103.—Anterior tibiae with five posteroventral bristles and two fine ventral bristles. *shelfordi*, n. sp.
Anterior tibiae with two or three posterior bristles and no ventral bristles. *xanthocnemus* Loew.

GROUP E

104.—Arista ending in a lamella (New Hampshire).....*dorycerus* Loew.
Arista plain.....105.
105.—Front tarsi plain.....106.
Front tarsi ornamented.....110.
106.—Anterior tibiae fringed with long black hair on anterior surface (Nevada). *barbipes* Van Duzee.
Front tibiae without such hair.....107.
107.—Wings with a conspicuous brown cloud on costal margin near apex (Massachusetts; New York).....*ornatipennis* Van Duzee.
Wings without brown cloud.....108.
108.—First two antennal segments yellow below, first segment large (Vancouver; Puget Sound).....*bruesi* Van Duzee.
Antennae wholly black, first segment small as usual.....109.
109.—Middle and hind femora ciliated below (Wisconsin; Europe). *ungulatus* Linnaeus.
Femora without cilia below (Alaska; Europe).....*rupestris* Haliday.
110.—Hind femora ciliated below.....111.
Hind femora without cilia below.....113.
111.—Cilia of hind femora yellow (Hudson Bay Territory; Europe). *brevimanus* Loew.
Cilia of hind femora long, black.....112.
112.—Middle and hind femora each with one preapical bristle (eastern states). *pachycnemus* Loew.
Middle and hind femora each with three preapical bristles (Ontario). *lundbecki* Curran.
113.—Hypopygial lamellae mostly white; hind femora wholly yellow (North West Territory).....*dasyops* Malloch.
Hypopygium with its lamellae black, a little brown in the middle; hind femora black at tip (Quebec).....*flavifacies* Van Duzee.

GROUP F

114.—Arista ending in a lamella (Labrador).....*pilatus* Van Duzee.
Arista plain.....115.
115.—Antennae black, at least first two segments black above.....116.
Antennae yellow, at least first segment wholly yellow.....148.

116.—Antennae very long, slender, first two segments narrowly black above, third yellow on lower half (Alaska; Europe)..... *longicornis* Stannius.
Antennae largely black, rather short as usual..... 117.
117.—Front coxae blackened on basal half or more, at least on outer surface.... 118.
Front coxae yellow, sometimes with a black or green stripe, or a large or small basal spot on outer surface..... 119.
118.—Hind femora blackened at tip; front tarsi plain (Puget Sound). *fucatus* Van Duzee.
Hind femora wholly yellow, hind tarsi wholly black; front tarsi ornamented (northern states; Canada to Alaska)..... *longimanus* Loew.
119.—Hind tibiae blackened at tip..... 120.
Hind tibiae wholly yellow, or only slightly infuscated at tip..... 130.
120.—Last segment of front tarsi more or less compressed..... 121.
Last segment of front tarsi plain..... 123.
121.—First four segments of front tarsi plain, fifth a very little compressed (Ontario; Saskatchewan; North and South Dakota)..... *canadensis* Van Duzee.
Fourth and fifth segments of front tarsi distinctly compressed..... 122.
122.—Hind femora with long yellow cilia below (Alaska; Europe). *plumitarsis* Fallén.
Hind femora without cilia below (eastern states)..... *albicoxa* Aldrich.
123.—Hind femora ciliated with long yellow hairs below..... 124.
Hind femora without cilia below..... 125.
124.—Costa with a small knot-like enlargement at tip of first vein (Ontario). *flaviciliatus* Van Duzee.
Costa a little enlarged at tip of first vein, gradually tapering to its tip, costa and dark part of tarsi very deep black in color (Maine; New York; Labrador)..... *serratus* Van Duzee.
125.—Last four segments of front tarsi of nearly equal length; each a little narrowed at base (eastern states; Oregon)..... *indigena* Van Duzee.
Second segment of front tarsi distinctly longer than third, the last segments not narrowed at base..... 126.
126.—Third antennal segment long and acutely pointed at tip..... 127.
Third antennal segment obtusely pointed or rounded at tip, arista dorsal... 128.
127.—All femora wholly yellow (Massachusetts)..... *acutus* Van Duzee.
Front femora a little infuscated in the middle (Alaska)..... *pensus* Aldrich.
128.—Hind femora with two rows of black hairs ventrally so that when viewed from below there are two rows of little black hairs with a glabrous space between them on lower surface (eastern states)..... *brevimanus* Loew.
Hind femora with the lower row of little hairs on inner side yellow and very delicate..... 129.
129.—Fifth segment of front tarsi yellowish; yellow hairs on lower edge of hind femora on inner surface nearly one-fifth as long as width of femora; costa without an enlargement at tip of fifth vein; third antennal segment nearly twice as long as wide (northern states; Canada; Oregon)..... *socius* Loew.
Fifth segment of front tarsi black; pale hairs on lower edge of femora very short; third antennal segment one and one-fourth times as long as wide; costa with a small knot-like enlargement at tip of first vein (eastern states)..... *socius gladius* Van Duzee.

130.—Hind tarsi wholly black or nearly so.....131.
Hind tarsi distinctly yellow at base.....139.

131.—Hind femora without cilia below.....132.
Hind femora ciliated below.....134.

132.—Front tarsi plain, almost wholly yellow; antennae largely yellow, very long, first two segments very narrowly black above (Alaska; Europe).
longicornis Stannius.
Front tarsi more or less widened or compressed.....133.

133.—Front tarsi twice as long as their tibiae; hind tibiae with a bare space on inner side, extending from the base to the middle (Hudson Bay Territory; Alaska).....*nudus* Loew.
Front tarsi one and one-fourth times as long as tibia, their last segment only slightly widened (Ontario; Saskatchewan; North and South Dakota).
canadensis Van Duzee.

134.—None of the segments of front tarsi compressed, but last four segments a little narrowed at base (Maine; New York; Labrador).. *serratus* Van Duzee.
Last segments of front tarsi much compressed, lamelliform.....135.

135.—Enlarged segments of front tarsi with a white reflection on outer side (eastern states).....*palaestricus* Loew.
These segments without a white reflection.....136.

136.—Front tarsi twice as long as their tibiae.....137.
Front tarsi one and a half times as long as their tibiae.....138.

137.—Antennae wholly black, cilia of hind femora rather scattering, extending their whole length (Hudson Bay Territory).....*subciliatus* Loew.
First antennal segment reddish or yellowish below; cilia of hind femora dense and confined to a short space on lower inner edge (Colorado).
amplipennis Van Duzee.

138.—Costa with a small knot-like enlargement at tip of first vein (eastern states).
splendidulus Loew.
Costa with an elongated enlargement at tip of first vein (eastern states).
splendidus Loew.

139.—Front tarsi with fifth segment compressed.....140.
Front tarsi plain.....146.

140.—Front tarsi dark yellow with fifth segment only a little compressed (Newfoundland).....*bolsteri* Van Duzee.
Fourth and fifth segments of front tarsi compressed, the fourth white, the fifth black.....141.

141.—Fourth segment of front tarsi distinctly less than half as long as fifth; hind tibiae considerably thickened in the middle (eastern states).
batillifer Loew.
Fourth segment of front tarsi at least three-fourths as long as fifth.....142.

142.—Third segment of front tarsi a little compressed, white; hind tibiae a little thickened (eastern states; Canada).....*dakotensis* Aldrich.
Third segment of front tarsi normal, not or scarcely widened, yellow.....143.

143.—Hind femora without cilia (eastern states).....*tonsus* Loew.
Hind femora ciliated on lower inner edge.....144.

144.—Third segment of front tarsi almost twice as long as the fourth or fifth; anterior coxae with large green basal spot (New York)..... *laciniatus* Coquillett.
Third segment of front tarsi only a little longer than the fourth or fifth; black spot at base of front coxae very small.....145.
145.—Third and fourth segments of front tarsi of nearly equal length, the fifth a little shorter, sometimes last three segments of nearly equal length; hind tibiae scarcely thickened (eastern states)..... *eudactylus* Loew.
Third and fifth segments of front tarsi of nearly equal length, the fourth a little shorter; hind tibiae considerably thickened (Indiana; Kansas; Ontario). *versutus* Van Duzee.
146.—Second abdominal segment with a tuft of long yellow hairs on the sides and a shorter and small tuft on third segment (California; Utah; New Mexico). *afflictus* Osten Sacken.
Abdomen without such tufts of hair.....147.
147.—First antennal segment long, thick, densely hairy (western). *crenatus* Osten Sacken.
First antennal segment normal, enlargement at tip of first vein as long as cross-vein (Idaho; California; Oregon)..... *idahoensis* Aldrich.
148.—Last segment of front tarsi compressed (Illinois; New York; Wisconsin). *tener* Loew.
Front tarsi plain.....149.
149.—Hind femora without cilia below.....150.
Hind femora ciliated on lower inner surface.....151.
150.—First two antennal segments yellow, third black (Colorado). *celeripes* Van Duzee.
Antennae wholly yellow (North Carolina)..... *tenuimanus* Van Duzee.
151.—Longest hairs that form the cilia on hind femora not three-fourths as long as width of femora; hind tarsi mostly yellow (Virginia)... *greenei* Van Duzee.
Longest hairs of the cilia on hind femora fully as long or longer than width of femora; hind tarsi wholly black.....152.
152.—Front tarsi yellow with fifth segment black (eastern states; Canada). *luteipennis* Loew.
Front tarsi blackened from tip of first segment (widespread).. *variabilis* Loew.

GROUP G

153.—First antennal segment black, at least on upper edge.....154.
First antennal segment wholly yellow.....210.
154.—Hind femora blackened at apex, at least above.....155.
Hind femora not at all blackened apically.....172.
155.—Upper edge of front femora narrowly blackened above (Alberta). *nigrilineatus* Van Duzee.
Front femora not blackened on upper edge.....156.
156.—Middle tibiae with very long slender bristles, the first segment of their tarsi with very long hairs; segments of front tarsi a little compressed (North America)..... *comatus* Loew.
Middle legs without unusually long hair or bristles.....157.
157.—Front tarsi with one or more segments compressed.....158.
Front tarsi plain.....162.

158.—Hind femora ciliated below.....159.
Hind femora without cilia.....160.
159.—Front coxae yellow (Alaska).....*braycnemus* Coquillett.
Front coxae wholly black (British Columbia).....*nigricoxa* Van Duzee.
160.—Front tarsi black from the tip of first segment (Colorado)....*elegans* Aldrich.
Front tarsi with at least first two segments yellow.....161.
161.—Front tarsi black from middle of third segment, first three segments very slender, last two forming an oval, broadly fringed tip to tarsi (Maine; Massachusetts; New Jersey).....*virga* Coquillett.
First two segments of front tarsi yellow, last three black, last two segments distinctly flattened, a little widened laterally, but not fringed; hind femora and tibiae each blackened on apical third (New York).
abruptus Aldrich.
162.—Front coxae yellow, sometimes considerably blackened at base on outer surface.....163.
Front coxae blackish almost to their tips.....168.
163.—Hind femora ciliated with long hairs on lower posterior edge.....164.
Hind femora without cilia.....165.
164.—Hind femora with one preapical bristle, their cilia long and delicate; anal angle of wing nearly obsolete (New Hampshire; Maine).....*obsoletus* Van Duzee.
Hind femora each with two or three preapical bristles, their cilia stout, scarcely as long as width of femora; anal angle of wing prominent (New York; Massachusetts; New Brunswick).....*trisetosus* Van Duzee.
165.—Face ochreous or grayish yellow; hypopygial lamellae about as long as wide (Wisconsin; Michigan).....*apheles* Melander and Brues.
Face silvery white.....166.
166.—Hypopygial lamellae triangular with a sharp point at one corner, very narrowly bordered with black; wings wholly grayish (Maine; Newfoundland).
genualis Van Duzee.
Hypopygial lamellae somewhat oval, a little longer than wide, with a black border; wings tinged with brown in front of third vein.....167.
167.—Costa not thickened at tip of first vein (New York; Wisconsin; Ontario).
discolor Van Duzee.
Costa much thickened at tip of first vein (Alaska).....*simplicipes* Aldrich.
168.—Wings more or less clouded with brown.....169.
Wings wholly grayish hyaline, or nearly so.....170.
169.—Apical portion of wing with a conspicuous blackish spot; front femora darker on upper surface (Illinois).....*praeustus* Loew.
Costal margin of wing brownish, darker in front of second vein; front femora brownish on upper edge (Washington).....*affluens* Van Duzee.
170.—Third antennal segment nearly twice as long as wide, arista near its tip (Alaska).
crassicornis Aldrich.
Third antennal segment only a little longer than wide, arista inserted near the middle of its upper edge.....171.
171.—Bend in last section of fourth vein small, but not unusually so; third vein bent backward at tip (eastern states).....*sincerus* Melander.
Last section of fourth vein only slightly bent, third vein only a very little bent back at tip (eastern states).....*sincerus subdirectus* Van Duzee.

172.—Front purple, blue or violet.....173.
Front green or bronze color.....180.
173.—Last segment of front tarsi compressed and widened.....174.
Front tarsi plain.....176.
174.—Front tarsi with fifth segment large, as wide as long, black, first four segments yellow (Massachusetts; New Hampshire; New York).
parphyrops Van Duzee.
Front tarsi black from tip of first segment; fifth segment rather small, about half as wide as long (Alaska).....*frontalis* Van Duzee.
175.—Omitted.
176.—Last section of fourth vein with a stump-vein at the bend (North America).
ramifer Loew.
Last section of the fourth vein moderately bent, without a stump-vein at bend.....177.
177.—Hind femora ciliated with long pale hairs below.....178.
Hind femora ciliated with long black hairs below.....179.
178.—Cilia of hind femora nearly twice as long as width of femora (eastern states).
setosus Loew.
Cilia of hind femora three-fourths as long as width of femora (Quebec) (*breviciliatus* Van Duzee, 1933, not 1930).....*brevipilosus* Van Duzee.
179.—Antennae wholly black (widespread).....*renidescens* Melander and Brues.
First two antennal segments broadly yellow below, usually with upper edge black (eastern states).....*marginatus* Aldrich.
180.—Hypopygium short with small yellow lamellae.....181.
Hypopygium of normal size.....182.
181.—Antennae wholly black (New York).....*cuniculus* Van Duzee.
First antennal segment conspicuously yellow below (Maine: Labrador).
abbreviatus Van Duzee.
182.—Hind femora ciliated on lower inner edge.....183.
Hind femora without cilia.....193.
183.—Front tarsi ornamented.....184.
Front tarsi plain.....188.
184.—Front coxae yellow (Canada; Europe).....*plumitarsis* Fallén.
Front coxae black.....185.
185.—Fifth segment of front tarsi emarginate at apex.....186.
Fifth segment of front tarsi not notched at apex.....187.
186.—Fifth segment of front tarsi notched at tip so as to form two nearly equal lobes (western states; British Columbia).....*obcordatus* Aldrich.
Fifth segment of front tarsi with its tip divided into two very unequal lobes (California; Utah).....*pollex* Osten Sacken.
187.—Fifth segment of front tarsi somewhat oval, but cut off nearly straight at tip (British Columbia).....*integripes* Parent.
Fifth segment of front tarsi somewhat triangular, about as long as width of tip (British Columbia).....*nigricoxa* Van Duzee.
188.—Antennae wholly black; face yellowish.....189.
First antennal segment distinctly yellow below.....190.

189.—Front coxae with conspicuous black hair on anterior surface; third antennal segment a little longer than wide, rather rounded at tip (Massachusetts; Ontario; Newfoundland)..... *melanocerus* Loew.

Front coxae with delicate yellow hairs; third antennal segment twice as long as wide, pointed at tip (eastern)..... *pantomimus* Melander and Brues.

190.—Cilia of hind femora about three-fourths as long as width of femora (New York; Indiana; Ontario)..... *incisuralis* Loew.

Cilia of hind femora as long or longer than width of femora..... 191.

191.—Costa with a knot-like enlargement at tip of first vein; hypopygial lamellae about as long as wide, somewhat orbicular (Massachusetts; New York; Ontario)..... *setosus* Loew.

Costa enlarged at tip of first vein, gradually tapering to tip; hypopygial lamellae distinctly longer than wide..... 192.

192.—Basal segment of middle tarsi with a large bristle above; hypopygial lamellae oval, rounded at tip; segments of front tarsi normal, (Illinois). *decorus* Van Duzee.

Basal segment of middle tarsi without a bristle above; lamellae subquadrate, truncate at tip; second, third, and fourth segments of front tarsi narrowed at base (Maine)..... *serratus* Van Duzee.

193.—Third antennal segment twice as long as wide..... 194.

Third antennal segment not over one and one-half times as long as wide.. 195.

194.—Costa without an enlargement at tip of first vein (Ontario)... *sicarius* Van Duzee.

Costa enlarged at tip of first vein, tapering to its tip (Manitoba). *simulans* Van Duzee.

195.—Front tarsi ornamented..... 196.

Front tarsi plain..... 201.

196.—Fifth segment of front tarsi only a little compressed, small (Ontario). *canadensis* Van Duzee.

Fifth segment of anterior tarsi distinctly compressed and considerably widened..... 197.

197.—Third segment of front tarsi nearly half, or more than half as long as first.. 198.

Third segment of front tarsi less than one-third as long as first..... 199.

198.—Anterior coxae wholly black (British Columbia)..... *nigricoxa* Van Duzee.

Anterior coxae yellow with a blackish spot on outer surface at base; second and third segments of front tarsi of nearly equal length and yellow (western). *pernix* Melander and Brues.

199.—Fourth and fifth segments forming an oval tip to the anterior tarsi (eastern states)..... *virga* Coquillett.

The oval tip to front tarsi formed of the fifth segment only, which is as long as or longer than third..... 200.

200.—Fifth segment of front tarsi more than one and one-half times as long as second (Colorado; New Mexico)..... *speciosus* Van Duzee.

Fifth segment of front tarsi about three-fourths as long as second (Saskatchewan)..... *frontalis* Van Duzee.

201.—Anterior coxae wholly yellow or with a small blackish spot at the base externally..... 205.

Anterior coxae with a black stripe on their outer surface or black on more than the basal half..... 202.

202.—Anterior coxae black on more than the basal half.....203.
Anterior coxae yellowish in front, with a black or green stripe on the outer surface.....204.
203.—Anterior coxae black, narrowly yellow at tip; all femora wholly yellow (Manitoba).....*robertsoni* Curran.
Anterior coxae wholly, and base of their femora narrowly, black (western). *amnicola* Melander and Brues.
204.—Last four segments of front tarsi a little compressed, black (western mountain region).....*aldrichii* Wheeler.
All tarsi plain, normal (widely distributed).....*penicillatus* Van Duzee.
205.—Middle tarsi wholly black (New Hampshire; Labrador)..*dasypodus* Coquillett.
Middle tarsi with the first segment mostly yellow.....206.
206.—Basal segment of hind tarsi yellow with a black tip; hind margin of wing notched at tip of fifth vein (North Carolina).....*carolinensis* Van Duzee.
Hind tarsi wholly black, at most slightly yellow at extreme base.....207.
207.—Anterior tarsi black from the tip of first segment (eastern)..*defectus* Van Duzee.
Anterior tarsi with first two segments yellow, sometimes wholly yellow....208.
208.—Arista nearly subapical; hypopygial lamellae large, twice as long as wide (Massachusetts).....*acutus* Van Duzee.
Arista inserted near the middle of third antennal segment; hypopygial lamellae moderately small, one and one-half times as long as wide.....209.
209.—Hypopygial lamellae rather small, with about six rather short hairs on upper edge; front tarsi wholly yellow (New York; Vermont). *idoneus* Van Duzee.
Hypopygial lamellae moderately large, without hairs on upper edge, except those on the rounded apical margin; last three segments of front tarsi black (Canada; Wyoming).....*canadensis* Van Duzee.
210.—Arista enlarged at tip; wings with a lobe at tip of sixth vein.....211.
Arista plain.....213.
211.—Middle tibiae silvery white on upper edge, with a black line above, which is concealed by the silvery pollen when viewed obliquely and does not reach the base (Colorado). Arista missing in type, so may not go here. *nigriapicalis* Van Duzee.
Middle tibiae with a more or less conspicuous brownish ring near apical third, beyond which on upper edge is a shining or whitish spot or streak....212.
212.—Hypopygial lamellae large; hind margin of wing with a deep sinus before the lobe at sixth vein (Pacific Coast).....*hastatus* Loew.
Hypopygial lamellae small; hind margin of wing normal, except for the lobe at the tip of the sixth vein (California).....*comptus* Van Duzee.
213.—Anterior tarsi ornamented.....214.
Anterior tarsi plain.....221.
214.—Front and dorsum of thorax thickly pollinose; bend in last section of fourth vein with two right angles and a stump-vein at lower bend (widespread). *bifractus* Loew.
Front shining; last section of fourth vein without a stump-vein at its bend, which is more or less rounded.....215.
215.—Third antennal segment wholly black.....216.
Third antennal segment largely yellow, at least yellow at base.....218.

216.—Fifth segment of front tarsi large, nearly orbicular, twice as long as third and fourth taken together (eastern North America)..... *flagellitenens* Wheeler.

Fifth segment of front tarsi moderately large, as long as or a little longer than third and fourth segments taken together.....217.

217.—Anterior tarsi infuscated almost to their base, second segment short, about half as long as first; third and fourth together about as long as fifth; hind tibiae narrowly but sharply black at tip (Colorado; New Mexico). *speciosus* Van Duzee.

Anterior tarsi with first two segments yellow, the third and fourth together three-fourths as long as fifth; hind tibiae blackened for more than one-third their length at tip, the black shading into the yellow (Montana; Colorado; Utah)..... *blandus* Van Duzee.

218.—Front green; hind tibiae black at tip, gradually becoming yellow, still largely infuscated; front tarsi with fifth segment only a little widened (New York). *abrasus* Van Duzee.

Front violet, rarely greenish; front tarsi with fifth segment considerably widened; hind tibiae narrowly but sharply black at tip, at least on inner side.....219.

219.—Hind tibiae scarcely blackened on anterior surface at tip, distinctly so on posterior side; tip of front tibiae slightly infuscated and with a few flattened bristles or scales at extreme tip (eastern North America).... *pugil* Loew.

Hind tibiae sharply and conspicuously black at tip.....220.

220.—Face silvery white; front violet (eastern North America)..... *vigilans* Aldrich.

Face brownish yellow; front dull greenish (Colorado).. *parvimanus* Van Duzee.

221.—Basal segment of middle tarsi laterally fringed (widespread).. *plumipes* Scopoli.

Middle tarsi plain.....222.

222.—Hind femora ciliated below.....223.

Hind femora without cilia.....225.

223.—Cilia of hind femora long, pale yellow (northern North America). *luteipennis* Loew.

Cilia of hind femora black; front usually blue or violet.....224

224.—Last section of fourth vein bent at a right angle with a stump-vein at bend; hypopygial lamellae somewhat triangular, fringed with short hairs (eastern states)..... *reflectus* Aldrich.

Last section of fourth vein moderately bent, without a stump-vein; hypopygial lamellae somewhat orbicular, fringed with very long hairs (eastern states). *marginatus* Aldrich.

225.—Antennae yellow, third segment partly yellow.....226.

Third antennal segment wholly black, the second sometimes black.....227.

226.—Middle tibiae silvery white above, with a black line, which does not reach the base and is wholly concealed by the silvery pollen when viewed obliquely; hind tibiae sharply black at tip (Colorado)..... *nigriapicalis* Van Duzee.

Middle tibiae wholly yellow, without silvery pollen or black line; hind tibia mostly blackish, the black shading into the yellow (New York). *abrasus* Van Duzee.

227.—First antennal segment wholly yellow, second black at tip, third wholly black; middle tibiae wholly yellow as usual; hind tibiae only a little infuscated at tip (New Mexico)..... *dorsalis* Van Duzee.

First antennal segment yellow, slightly darker above, second and third wholly black; middle tibiae with an opalescent spot near tip and extending nearly one-fourth their length; hind tibiae deep black on apical sixth (Alaska). *uxorcula* Van Duzee.

GROUP H

228.—First antennal segment wholly yellow.....229.

Antennae black, first segment may be yellow with upper edge narrowly black.....253.

229.—Arista enlarged at tip; wings with a conspicuous lobe at tip of sixth vein..230.

Arista plain.....231.

230.—Hypopygial lamellae large; hind margin of wing with a deep sinus before the lobe (Washington; California; Alaska; British Columbia). *hastatus* Loew.

Hypopygial lamellae small; hind margin of wing normal, except for the lobe at tip of sixth vein (California)..... *comptus* Van Duzee.

231.—Front tarsi ornamented.....232.

Front tarsi plain.....246.

232.—Hind femora ciliated below; tip of front tibiae a little enlarged, slightly blackened, with a few flattened bristles on apical edge (eastern North America). *pugil* Loew.

Not with the above combination of characters.....233.

233.—Hind coxae yellow; front and dorsum of thorax thickly pollinose, nearly opaque; bend in last section of fourth vein with a stump-vein (widespread). *bifractus* Loew.

Hind coxae mostly black; front and dorsum of thorax shining.....234.

234.—Wings with a projecting lobe at tip of sixth vein.....235.

Wings without or with scarcely a trace of such a lobe.....240.

235.—Lobe at tip of sixth vein large and prominent.....236.

Lobe at tip of sixth vein small, but distinct.....237.

236.—Hypopygial lamellae with apical margin evenly rounded; costa not enlarged at tip of first vein (widespread)..... *lobatus* Loew.

Apical margin of the lamellae emarginate; costa enlarged at tip of first vein, tapering to its tip (widespread)..... *omnivagus* Van Duzee.

237.—First and second segments of front tarsi of about equal length (Colorado; Wyoming)..... *aeratus* Van Duzee.

Second segment of front tarsi distinctly shorter than first.....238.

238.—Third segment of anterior tarsi not over one-third as long as the second..239.

Third segment of anterior tarsi about half as long as the second (Colorado; Ontario)..... *coloradensis* Aldrich.

239.—Third segment of front tarsi less than one-third as long as second (California). *completus* Van Duzee.

Third segment of front tarsi one-third as long as second (Wisconsin; Colorado). *amphericus* Melander and Brues.

240.—Second segment of front tarsi shorter, or at most scarcely longer than the two following segments taken together.....241.
Second segment of front tarsi distinctly longer than the two following segments taken together.....243.

241.—Second antennal segment yellow (Washington).....*plumosus* Aldrich.
Second antennal segment black.....242.

242.—Third segment of front tarsi yellow, fifth segment nearly as wide as long (Colorado; Idaho; Washington).....*sufflavus* Van Duzee.
Third segment of front tarsi blackish, fifth segment about half as wide as long (Colorado; New Mexico).....*speciosus* Van Duzee.

243.—Third segment of front tarsi more than half as long as second, usually infuscated at tip (Wisconsin; Colorado).....*amphericus* Melander and Brues.
Third segment of front tarsi scarcely half as long as second, wholly yellow..244.

244.—Second segment of front tarsi not more than two-thirds as long as the first..245.
Second segment of front tarsi almost as long as the first (Colorado; Wyoming). *aeratus* Van Duzee.

245.—Second segment of front tarsi two-thirds as long as first (Wisconsin; Colorado). *amphericus* Melander and Brues.
Second segment of front tarsi scarcely half as long as first (Idaho; Washington). *sufflavus* Van Duzee.

246.—Basal segment of middle tarsi fringed with black hairs on both sides....247.
Basal segment of middle tarsi plain.....248.

247.—Middle tibiae nearly twice as long as their femora (New Hampshire; Massachusetts).....*wheeleri* Melander and Brues.
Middle tibiae not over one and one-fourth times as long as their femora (Europe; North America).....*plumipes* Scopoli.

248.—Hind femora ciliated below.....249.
Hind femora without cilia.....250.

249.—Hind femora ciliated with black hairs; front violet (eastern states). *marginatus* Aldrich.
Hind femora ciliated with long whitish hairs on lower posterior edge; front green (eastern North America).....*gracilis* Aldrich.

250.—Hind margin of wing with a conspicuous sinus between the tips of fifth and sixth veins.....252.
Hind margin of wing nearly evenly rounded.....251.

251.—Hypopygium rudimentary, the lamellae not developed; hind tibiae wholly yellow (Illinois).....*imperfectus* Van Duzee.
Hypopygium normal, its lamellae rather large; hind tibiae slightly infuscated at tip (New Mexico; Arizona).....*dorsalis* Van Duzee.

252.—Middle tarsi yellow at base, first segment without a bristle above; middle tibiae with an opalescent spot at tip (eastern states).....*fulvipes* Loew.
Middle tarsi wholly black, first segment with three bristles above (White Mountains). (This may be *dasypodus* Coquillett).....*evolvens* Parent.

253.—Basal segment of middle tarsi wholly deep black, first segment thickened about as in hind tarsi, and with several bristles above (New Hampshire; Labrador; Quebec).....*dasypodus* Coquillett.
Basal segment of middle tarsi mostly yellow.....254.

254.—Front tarsi ornamented.....255.
Front tarsi plain.....269.
255.—Hind femora ciliated on lower posterior edge (Europe; Alaska).
plumitarsis Fallén.
Hind femora without cilia.....256.
256.—Front violet.....257.
Front green or bronze color.....258.
257.—Fifth segment of front tarsi much longer than fourth (eastern North America).
porphyrops Van Duzee.
Fifth segment of front tarsi about one-fourth as long as fourth (New York; Alaska; Canada; Europe).....*nigricornis* Meigen.
258.—Fifth segment of front tarsi longer than fourth.....259.
Fifth segment of front tarsi shorter than fourth.....267.
259.—Fifth sgement of front tarsi distinctly but only a little enlarged and but little longer than fourth (western states).....*coquilletti* Aldrich.
Enlargement of fifth segment very conspicuous.....260.
260.—Second segment of the anterior tarsi shorter than the first.....264.
Second segment of the anterior tarsi as long as or longer than the first....261.
261.—First and second segments of the anterior tarsi of about equal length....262.
Second segment of the anterior tarsi longer than the first.....263.
262.—Third segment of front tarsi one-fourth as long as second (Colorado; Wyoming).
aeratus Van Duzee.
Third segment of front tarsi half or more than half as long as second (Rocky Mountain region).....*procerus* Van Duzee.
263.—Front tarsi about one and two-thirds times as long as their tibia; front coxae with a transverse, preapical, black line; scutellum narrowly margined with yellow (Colorado).....*jugalis* Tucker.
Front tarsi one and one-half times as long as their tibia, third segment one-fourth as long as second; front coxae without a black line; scutellum wholly metallic (Rocky Mountain region).....*procerus* Van Duzee.
264.—Front tarsi about one and three-fourths times as long as their tibia (Oregon).
compactus Van Duzee.
Front tarsi about one and one-fourth times as long as their tibia.....265.
265.—Third segment of front tarsi black; costa with a small but distinct enlargement at tip of first vein (Colorado; New Mexico)....*speciosus* Van Duzee.
Third segment of front tarsi yellow; costa without an enlargement at tip of first vein.....266.
266.—Second segment of front tarsi only two-thirds as long as fifth (Colorado).
speciosus Van Duzee.
Second segment of front tarsi nearly one-third longer than fifth (Saskatchewan).....*subspina* Van Duzee.
267.—Third segment of front tarsi much longer than fourth (Massachusetts; Minnesota).....*angustatus* Aldrich.
Third and fourth segments of front tarsi of nearly equal length.....268.
268.—First four segments of front tarsi wholly pale yellow (widespread).
nigricornis Meigen.
First two or three segments of front tarsi black or infuscated, fourth yellow, fifth black (Labrador; Quebec).....*boreus* Van Duzee.

269.—Hind femora without cilia below.....270.
Hind femora ciliated on lower surface.....273.
270.—Middle tibiae with a row of very long bristles, the basal segment of their tarsi also with a row of very long hairs (widespread).....*comatus* Loew.
Middle legs with their bristles and hair of normal length.....271.
271.—Tips of hind femora black; front violet (widespread).....*sincerus* Melander.
Tips of hind femora not or scarcely infuscated; front green.....272.
272.—Second antennal segment wholly yellow; metallic color of mesonotum dulled with thick yellowish-gray pollen (New Mexico).....*dorsalis* Van Duzee.
Second antennal segment wholly black; mesonotum shining (Canada; Wyoming).....*canadensis* Van Duzee.
273.—Front green (New York; New Jersey; North Dakota).....*incisuralis* Loew.
Front blue or violet.....274.
274.—All coxae yellow, the middle pair a little blackened on outer surface (Wisconsin). *flavicoxa* Van Duzee.
Middle and hind coxae black with yellow tips.....275.
275.—Antennae wholly black (widespread).....*renidescens* Melander and Brues.
First two antennal segments yellow, usually with a black line above (eastern states).....*marginatus* Aldrich.

GROUP I

276.—Antennae black, first and second segments may be yellow below.....277.
First antennal segment wholly yellow.....304.
277.—Antennae wholly black.....278.
First antennal segment yellow below.....280.
278.—Front dark violet (California; New Mexico; British Columbia)..*bakeri* Cole.
Front green or blue-green.....279.
279.—Wings with anal angle prominent; front coxae with black hairs on anterior surface (eastern states; Ontario).....*chrysostoma* Loew.
Wings with anal angle nearly obsolete, front coxae with white hairs on anterior surface (Ontario).....*parvicornis* Van Duzee.
280.—Third antennal segment twice as long as wide.....281.
Third antennal segment not much longer than wide, at most not over one and one-half times as long as wide.....282.
281.—Face silvery white; first antennal segment with lower half yellow (Ontario). *sicarius* Van Duzee.
Face yellow; first antennal segment only slightly yellow below (eastern states; Ontario).....*chrysostoma* Loew.
282.—Front tarsi ornamented.....283.
Front tarsi plain.....291.
283.—Fifth segment of front tarsi not or but little flattened, fringed laterally....284.
Fifth segment of front tarsi compressed, fringed above with very minute hairs.....285.
284.—Hypopygial lamellae formed of two large lobes, united at base, so as to appear like two pairs of lamellae (eastern states; Canada). *quadrilamellatus* Loew.
Hypopygial lamellae dark yellow, thick, bare (eastern states; Canada). *scoparius* Loew.

285.—Hind femora ciliated below; front tarsi with fourth segment white, fifth black, (Pennsylvania; New York; Ontario)..... *laciniatus* Coquillett.
Hind femora without cilia below.....286.
286.—First and second segments of front tarsi of equal length.....287.
Second segment of front tarsi not much over two-thirds as long as first..288.
287.—Front tarsi with third segment longer than second (western).
canaliculatus Thomson.
Front tarsi with third segment shorter than second (Wyoming; Colorado).
aeratus Van Duzee.
288.—Fifth segment of front tarsi only a little enlarged (western states).
coquilletti Aldrich.
Fifth segment of front tarsi much compressed and widened.....289.
289.—Fifth segment of front tarsi only about one-fourth as long as fourth (widespread).
nigricornis Meigen.
Fifth segment of front tarsi much longer than fourth.....290.
290.—Second segment of front tarsi one and one-half times as long as third (California)..... *talus* Van Duzee.
Second segment of front tarsi two and one-half times as long as third (British Columbia)..... *reticulus* Van Duzee.
291.—Hind femora with a single preapical bristle.....292.
The usual preapical bristles ending a row of bristles of increasing length; outer posterior edge of front coxae with a green or blackish streak, sometimes the front coxae almost wholly green.....301.
292.—First antennal segment long and thick; cilia of the calypters unusually long (widespread)..... *penicillatus* Van Duzee.
Antennae normal.....293.
293.—Front violet (Wyoming)..... *perplexus* Van Duzee.
Front green.....294.
294.—Wings with a blackish cloud in front (north eastern states).
harbecki Van Duzee.
Wings without blackish cloud.....295.
295.—First antennal segment yellow with upper edge black.....296.
First antennal segment black, yellow below, sometimes with lower half yellow.....298.
296.—Hind tibiae with a blackish spot on posterior side at tip, on which the hairs are longer and denser (North Carolina)..... *carolinensis* Van Duzee.
Hind tibiae not or scarcely darker on posterior side at tip.....297.
297.—Anal angle of wing evenly rounded (Labrador)..... *latronis* Van Duzee.
Anal angle of wing somewhat bilobed (Virginia; Connecticut; New York; New Hampshire) (*lobipennis* Van Duzee)..... *virginiensis* Van Duzee.
298.—Face silvery white.....299.
Face golden yellow, at least distinctly yellowish.....300.
299.—Anal angle of wing nearly obsolete (Ontario)..... *parvicornis* Van Duzee.
Anal angle of wing prominent (Labrador)..... *latronis* Van Duzee.

300.—Anal angle of wing extending conspicuously toward the root of the wing, somewhat bilobed; front tarsi scarcely infuscated, even at tip (Virginia; Connecticut; New York; New Hampshire) (*lobipennis* Van Duzee). *virginiensis* Van Duzee.

Angle angle of wing extending but little toward root of wing, not lobed; all tarsi sharply black from tip of first segment (New England; New York). *slossonae* Van Duzee.

301.—Last four segments of middle tarsi compressed (western)....*aldrichii* Wheeler.

Middle tarsi plain as usual....302.

302.—First antennal segment normal in size and with short hairs (California; Oregon)....*cavatus* Van Duzee.

First antennal segment long, with long bushy hair....303.

303.—First two antennal segments broadly yellow below; lower 4–6 orbital cilia orange yellow (western)....*consanguineus* Wheeler.

Second antennal segment wholly black or nearly so; lower half of the orbital cilia pale yellow (western)....*aurifex* Van Duzee.

304.—Front tarsi ornamented....305.

Front tarsi plain....331.

305.—Front tarsi with fifth segment only slightly enlarged; hind femora ciliated below....306.

Ornamentation of front tarsi conspicuous....307.

306.—Fifth segment of front tarsi wholly black, preceding segments wholly yellow (eastern North America)....*terminalis* Loew.

Anterior tarsi infuscated from tip of first segment, with the fifth segment pale yellowish, except at base (New York; New Jersey). *domesticus* Van Duzee.

307.—Hind femora ciliated below....308.

Hind femora without cilia....317.

308.—Hind coxae infuscated on basal half, at least with a large blackish spot at base on outer surface....309.

Hind coxae wholly yellow, or nearly so....311.

309.—First three segments of front tarsi of nearly equal length, third being a little the longest (western)....*canaliculatus* Thomson.

Second segment of front tarsi longer than first, third very much shorter....310.

310.—Hypopygial lamellae truncate at apex, with a short but rather acute point at upper corner (California; Oregon)....*grandis* Aldrich.

Hypopygial lamellae with a long, acute point in the center of apical margin (California)....*superbus* Van Duzee.

311.—Humeri at least yellow below, usually mostly or wholly yellow; fifth segment of front tarsi white....312.

Humeri metallic, wholly without yellow....313.

312.—Cilia of hind femora very short, not over one-fifth as long as width of femora; second segment of front tarsi about equal in length to fourth and fifth together (Louisiana; New Jersey)....*distinctus* Van Duzee.

Cilia of hind femora at least half as long as width of femora; second segment of front tarsi about equal to fifth (eastern)....*funditor* Loew.

313.—Anterior tarsi yellow with only the fifth segment black and compressed though rather small (widespread).....*ruficornis* Loew.
At least the fourth segment of the front tarsi black.....314.
314.—First two segments of front tarsi yellow, third and fourth black, fringed with rather long black hair above, fifth segment white (Minnesota).
ainsliei Van Duzee.
Front tarsi with first, second and basal half of third segment yellow, remainder black, third and fourth segments fringed above with long black hairs..315.
315.—Cilia of hind femora not half as long as width of femora (New York; Canada).
absonus Van Duzee.
Cilia of hind femora distinctly longer than width of hind femora.....316.
316.—Costa with a small, short enlargement at tip of first vein; third and fourth veins parallel at their tips (widespread).....*cuprinus* Wiedemann.
Costa considerably enlarged at tip of first vein, tapering to its tip; third and fourth veins approaching each other toward their tips (California).
subcostatus Van Duzee.
317.—Basal half of hind coxae black, at least on outer surface.....318.
Hind coxae wholly or almost wholly yellow.....325.
318.—Front tarsi with second segment nearly one-fourth longer than first.....319.
Front tarsi as long as, or shorter than first.....320.
319.—Hypopygial lamellae scarcely twice as long as wide (western)..*tenuipes* Aldrich.
Hypopygial lamellae four times as long as wide (California).
superbus Van Duzee.
320.—First and second segments of front tarsi of nearly equal length.....321.
Second segment of front tarsi distinctly shorter than first.....322.
321.—Third segment of front tarsi longer than second (western).
canaliculatus Thomson.
Third segment of front tarsi much shorter than second (Wyoming; Colorado).
aeratus Van Duzee.
322.—Hypopygial lamellae with a deep incision on upper edge (western).
duplicatus Aldrich.
Hypopygial lamellae without an incision, normal.....323.
323.—Empodium large, white, forming a conspicuous white tip of the tarsi (Washington).....*plumosus* Aldrich.
Empodium small, or at least not conspicuously large.....324.
324.—Wings with a small lobe at tip of sixth vein; costa not enlarged at tip of first vein; middle basitarsi with a large bristle above; hind basitarsi only a little yellow at base (California).....*completus* Van Duzee.
Wings without a lobe at tip of sixth vein; costa with a long tapering enlargement at tip of first vein; middle basitarsi without a bristle; hind basitarsi yellow, narrowly black at tip (western).....*occidentalis* Aldrich.
325.—Ornamentation of front tarsi in the form of long hairs on upper edge of third and fourth segments, none of the segments very much compressed...326.
Front tarsi with one or more segments compressed and widened.....327.
326.—Wings long, narrowed at base and with a lobe at tip of sixth vein (widespread).
longipennis Loew.
Wings of the usual form, rather evenly rounded on posterior margin, (Kansas; Illinois; Indiana; Ontario).....*sarotes* Loew.

327.—Last three segments of front tarsi compressed, third small and white, fourth and fifth large, black with white tips, fifth very large and forked (Kansas; Texas)..... *pulchrimanus* Bigot.

Third segment of front tarsi cylindrical, not compressed.....328.

328.—Fifth segment of front tarsi wholly white (Louisiana).
funditor distinctus Van Duzee.

Fifth segment of front tarsi partly or wholly black.....329.

329.—Fifth segment of front tarsi wholly black, rather small, with a finger-like appendage extending over the claws (Louisiana).... *digitus* Van Duzee.

Fifth segment of front tarsi large, conspicuously tipped with white, or with the empodium large and white.....330.

330.—Fifth segment of front tarsi with an appendage resembling a sixth segment, both parts tipped with white (District of Columbia; Louisiana; Illinois).
sexarticulatus Loew.

Fourth and fifth segments of front tarsi of about equal size, black, fifth with white extension, which is nearly as large as the segment, formed by the enlarged empodium (Texas)..... *sphaeristes* Brues.

331.—Hind femora ciliated below, front in both species sometimes green and sometimes violet.....332.

Hind femora without cilia.....333.

332.—Humeri yellow, sometimes only yellow below; cilia of hind femora shorter than width of femora (widespread)..... *scapularis* Loew.

Humeri wholly metallic; cilia of hind femora longer than width of femora (New York; New Jersey)..... *domesticus* Van Duzee.

333.—Arista tipped with a lamella (Washington; Alaska)..... *hastatus* Loew.

Arista plain.....334.

334.—Middle tarsi compressed and widened (widespread)..... *latipes* Loew.

Middle tarsi plain.....335.

335.—Wings with a deep sinus between tips of fifth and sixth veins.....336.

Hind margin of wing normal, without sinus or lobe, nearly evenly rounded.339.

336.—Antennae almost wholly yellow (Illinois; New Hampshire; New York).
fulvipes Loew.

First antennal segment yellow, second and third black.....337.

337.—Costa without an enlargement at tip of first vein (White Mountains).
evolvens Parent.

Costa enlarged at tip of first vein.....338.

338.—Costa with a knot-like enlargement at tip of first vein (Virginia; Connecticut; New York)..... *virginiensis* Van Duzee.

Costa with an elongated enlargement at tip of first vein (Alaska).
inflatus Aldrich.

339.—Costa not enlarged at tip of first vein.....340.

Costa with an enlargement at tip of first vein.....341.

340.—Anterior tarsi yellow with fifth segment black (New York; Wisconsin; Ontario)..... *terminalis* Loew.

Anterior tarsi black from the tip of first segment (New Mexico).
townsendi Aldrich.

341.—Costa a little thickened at tip of first vein; face golden yellow (Kansas; Tennessee)..... *aurifacies* Aldrich.
Costa with a conspicuous, elongated enlargement at tip of first vein; face silvery white, a little yellowish above.....342.
342.—Hypopygium very small, its lamellae not developed (Illinois). *imperfectus* Van Duzee.
Hypopygium and its lamellae normal..... *vittatus* Loew.

Dolichopus kleini, new species (Curran)

A small species related to *recticosta* Aldrich but with less extensively black posterior tibiae, more broadly black bordered genital lamellae, etc. Legs black, the tibiae and bases of the anterior four tarsi yellow. Length, 4 mm.

MALE.—Front green, in some lights yellowish-brown pollinose. Occiput green, yellowish-brown pollinose above, whitish below, the lower orbital cilia white, only the lower one somewhat squamose. Face shining white, of moderate width. Palpi brownish yellow, with black hairs. Antennae black, the third segment moderately large, one-half longer than wide, somewhat pointed apically, the arista arising near the middle.

Thorax shining green, the mesonotum and scutellum with reddish brown, the pleura with whitish pollen.

Legs black, the apices of the femora reddish; tibiae yellow, the posterior pair with about the apical fifth black; anterior four tarsi with the basal segment mostly yellowish. Anterior coxae silvery pollinose, clothed with black hairs on the inner half and fine white hairs on the outer half. Femora with short black hair, the posterior pair with a row of short white hairs on the posteroventral surface, the hairs almost one-third as long as the femoral width; posterior and middle femora each with one preapical bristle. Anterior tibiae with four bristles above and only one on the posterior surface; middle tibiae with six or seven bristles above and one anteroventral; posterior tibiae with five anterodorsal, four or five posterodorsal, and one ventral bristle; front tarsi shorter than their tibiae, the apical three segments of almost equal length, the fourth the shortest; middle tarsi without dorsal bristles, the basal segment of the posterior tarsi with two.

Wings cinereous hyaline, strongly tinged with brown on the anterior half; costa not enlarged; bend of fourth vein before its middle; posterior border of the wing regular in outline. Squamal cilia black. Halteres yellowish.

Abdomen shining green, the incisures broadly bronzed; sides thinly white pollinose; venter whitish pollinose. Genitalia blackish, thinly pale pollinose, the under side somewhat metallic green basally; lamellae whitish, broadly bordered with black except basally, transverse, the lower edge almost straight, the upper edge very broadly rounded, the apex gently convex and jagged, bearing about six large teeth, the bristles arising from some of the teeth either plain and curved or triangularly expanded at the apex; inner appendages reddish or yellowish.

TYPES.—Holotype, male, and five paratypes, Baleville, New Jersey, August 5, 1933 (Curran).

The specimens were collected on the side of a board in the stream passing the residence of Mr. A. Klein. They were taken just at dusk and

were entirely absent during the day. The board was kept wet by drops of water thrown up by the current and it seems likely that this species will be found only in such places, as no other specimens were located during two days of collecting. It is possible, of course, that the species might have been found in other nearby places late in the evening.

Dolichopus shelfordi, new species (Curran)

Very similar to *xanthocnemus* Loew but at once distinguished by the presence of five posteroventral bristles on the anterior tibiae. Length, 4 mm.

MALE.—Face moderately wide, silvery white (perhaps brownish above); front shining dark green; upper orbital cilia black, the lower pale yellowish and not squamose. Palpi brown, bearing reddish-brown hairs. Antennae black, the third segment a little longer than wide, obtusely pointed at the apex, the arista arising near the middle.

Thorax shining dark green, thinly cinereous pollinose, the pleura whitish. Scutellum with some delicate whitish marginal hairs.

Coxae black, with reddish tips, thinly cinereous pollinose, the hair wholly black, inconspicuous on the front pair; trochanters reddish; femora black with reddish tips; anterior four tibiae reddish yellow, the posterior pair brownish red with the apical fourth black; tarsi black, the basal segment of the anterior four reddish yellow on the basal three-fourths. Hair black, the femora with tiny yellowish hairs below on the posterior surface, the posterior femora with moderately long, fine, whitish cilia on the apical half of the posteroventral surface; middle and posterior femora each with a single preapical bristle. Anterior tibiae with three anterodorsal bristles, one short posterodorsal bristle near the base, a row of five posteroventrals on the basal two-thirds and two fine ventral bristles; middle tibiae with four anterodorsal, one posterodorsal, and one ventral bristle; posterior tibiae with rows of anterodorsal and posterodorsal bristles and four weak ventral bristles. Posterior tarsi with three dorsal and two posterior bristles; middle tarsi missing; anterior tarsi with the apical three segments of about equal length, the fifth not longer than the fourth.

Wings cinereous hyaline; costa with a small enlargement at tip of first vein; third and fourth veins bent backward apically and parallel before their apices, the bend in the fourth vein well before the middle. Cilia of the squamae black. Halteres reddish yellow.

Abdomen shining dark green, thinly whitish pollinose dorsally and rather thickly so on the sides, the apices of the segments broadly bronzed. Genitalia black, thinly cinereous pollinose; lamellae subquadrate, the apex bluntly rounded and jagged, whitish with black border, the outer edge fringed with fine, curved bristles.

HOLOTYPE.—Male, Mile 474, Hudson Bay Railroad, Manitoba, July 17, 1932 (V. E. Shelford).

D. xanthocnemus has only two posteroventral bristles on the anterior tibiae and lacks ventral bristles.